

WAYNE CHANG

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Department of Finance and Business Economics  
University of Southern California  
3670 Trousdale Parkway, BRI 308  
Los Angeles, CA 90089

(949) 637-3316  
wayne.chang.2016@marshall.usc.edu

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**Research Interests** Empirical asset pricing; Stock return predictability; Cross-sectional anomalies; Horizon issues associated with equity investing

**Education** **USC Marshall School of Business** 2011-Present  
Ph.D. Candidate, Finance and Business Economics  
Dissertation Chair: Wayne Ferson

**Harvard Business School** 2007-2009  
Master in Business Administration

**Yale University** 2000-2004  
Bachelor of Arts, *magna cum laude*  
Majors in Economics and International Studies (both with Distinction)

**Working Papers** **The Term Structure of CAPM Alphas and Betas (Job Mkt Paper)**  
*Winner of the Best Doctoral Student Paper Award at the 2016 Southwestern Finance Association Conference*

*Invited presentation at the 2016 FMA*

**Abstract:** Portfolio alpha and beta estimates are foundational for investment management decisions and for the broader asset pricing literature. Using monthly returns to calculate these coefficients, however, is inappropriate for investors with longer investment horizons. This is because alphas and betas are horizon-dependent and have term structures that are flat only under special conditions that don't generally hold. This paper documents what these conditions are and examines the empirical term-structure of CAPM alphas and betas for size, value, and momentum. It finds that betas can reverse sign as the return horizon lengthens, turning a risky portfolio into a hedge. This is true for size while the opposite applies to momentum. These patterns directly impact alphas, such that at the 10-year horizon, size's alpha is comparable to momentum's while momentum's actually has weaker statistical significance. These and other surprising findings are reinforced by the development of a novel conditional estimation methodology. It is simple, non-parametric, and modifies the standard realized approach to work for multi-month and multi-year returns.

**Works in Progress** **1. Information Aggregation for Stock Return Predictability**

*Proposal led to the USC Graduate School Final Year Fellowship (preliminary draft available upon request)*

**Abstract:** The literature on stock return predictability has identified macroeconomic and technical predictors that when combined, leads to meaningful pseudo out-of-sample outperformance relative to the historic mean null. This paper investigates a new method for aggregating information beyond just using forecast combination or principal components. By sequentially layering groups of information, the predictive performance of this new approach substantially outperforms that of prior studies. Application to volatility forecasting yields more mixed results. In all, a mean variance

investor investing in monthly S&P 500 returns gains from this new method as much as 4.3% per year.

## 2. Mean Reversion in Equity Return Components

*(preliminary draft available upon request)*

**Abstract:** A firm's equity returns can be decomposed into four components: changes in market-to-book, changes in book-to-income, income growth, and the distribution yield. This paper explores this return decomposition and finds that the firm characteristics behind each component tends to revert to the market mean. Firms with high relative levels of valuation, profitability, income, or return distribution experience subsequent relative declines. The paper models this impact on firm-level annual returns using a panel approach. It finds that a simple model pooling all firms and years since 1951 is nevertheless sufficient in generating the existence of the Fama-French '15 value and investment premiums. The model demonstrates consistent out-of-sample predictability for the magnitude of these premiums while significantly capturing variation in the size and profitability premiums as well.

## 3. Classifying the Predictive Ability of Predictors (with Wayne Ferson)

**Abstract:** This paper provides a comprehensive analysis of the predictive ability of lagged predictor variables suggested in the literature, focusing on three kinds of predictive ability: (1) the ability to predict the market return, (2) the ability to predict the market variance, and (3) the ability to predict innovation-covariances with the market. This third kind of predictive ability is motivated as an implication of generic asset pricing theory, but has not been examined before in any detail.

<b>Activities</b>	Editorial Assistant for the Review of Asset Pricing Studies	2014-2015
	Nominated for and attended NBER Summer Institute (Asset Pricing)	2015
	Ph.D. Student Brownbag Organizer	2015-Present
	Member of Academic Advisory Committee for Ph.D. students	2014-2015
	Co-organizer of 2 <sup>nd</sup> Annual USC Marshall Ph.D. Finance Conference	2014
<b>Awards</b>	USC Graduate School Final Year Fellowship	2016-2017
	Best Doctoral Student Paper Award at the 2016 Southwestern Finance Association Conference	2016
	American Finance Association Doctoral Student Travel Grant	2015
	USC Marshall Graduate Assistantship	2013-2016
	USC Provost's Ph.D. Fellowship	2011-2013
<b>Teaching</b>	Instructor for ECON 354 Macroeconomics for Business Majors Students' average rating 4.4/5.0 (complete evaluation available upon request)	2014 Summer
	Private Tutor for BUAD 306 Fundamentals of Corporate Finance	2013 Fall
<b>Professional Experience</b>	Consultant and Junior Manager (Oliver Wyman; NYC, Singapore)	2004-07, 2010
	Summer Equity Analyst (Riversource Investments; Boston)	2008 summer
	Sales and Trading Summer Analyst (Goldman Sachs; Hong Kong)	2003 summer
<b>Personal</b>	American Citizen. Fluent in English and Mandarin. Loves Meditation.	
<b>References</b>	<b>Professor Wayne Ferson</b> Ivadelle and Theodore Johnson Chair of Banking and Finance Department of Finance and Business Economics Marshall School of Business, USC Email: ferson@marshall.usc.edu Phone: (213) 740-5615	